

COMPUTER SCIENCE MINOR

Minor in Computer Science (18 hours minimum)



NATURE OF THE WORK

The widespread and increasing use of computers and information technology has generated a need for highly trained, innovative workers with extensive theoretical expertise. These workers, called *computer scientists*, are the designers, creators, and inventors of new technology. By creating new technology, or finding alternative uses for existing resources, they solve complex business, scientific, and general computing problems. Some computer scientists work on multidisciplinary projects, collaborating with electrical engineers, mechanical engineers, and other specialists.

Computer scientists conduct research on a wide array of topics. Examples include computer hardware architecture, virtual reality, and robotics. Scientists who research hardware architecture discover new ways for computers to process and transmit information. They design computer chips and processors, using new materials and techniques to make them work faster and give them more computing power. When working with virtual reality, scientists use technology to create life-like situations. For example, scientists may invent video games that make users feel like they are actually in the game. Computer scientists working with robotics try to create machines that can perform tasks on their own—without people controlling them. Robots perform many tasks, such as sweeping floors in peoples' homes, assembling cars on factory production lines, and "auto-piloting" airplanes.

(compiled from U.S. Dept. of Labor Occupational Outlook Handbook 2010-2011)

USF DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING EXPERTISE

Artificial Intelligence	Computer Vision
Knowledge Discovery	Image Analysis
Computer Graphics	Pattern Recognition
Geometric Modeling	Networks

The University of South Florida Bachelor of Science degree programs in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering and Mechanical Engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The Bachelor of Science in Computer Science program at the University of South Florida is accredited by the Computing Accreditation Commission of the Accreditation Board for Engineering and Technology. ABET 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 telephone: (410) 347-7700.

> EDUCATION REQUIREMENTS > JOB OUTLOOK > SALARY

- A bachelor's degree in computer science is required for most entry-level jobs, but some research positions may require a graduate degree.
- Continuing education is critical for engineers in order to keep up with improvements in technology.
- Overall job opportunities for engineers are expected to be good.
- Average starting salary - \$63,017 (*NACE spring 2011*)

REAL WORLD OPPORTUNITIES

Co-ops and Internships – These programs offer students numerous opportunities to engage with the broader-based engineering, technology and science community.

Engineering EXPO – This student-run event exposes school children to science and engineering principles in a two-day, on campus event.

Research Experiences for Undergraduates – The program gives undergraduate students an opportunity to participate. Students work as Research Assistants with professors and graduate students on a variety of exciting and interdisciplinary research projects.

Scholarships – More than 100 scholarships are awarded to USF engineering students totaling more than \$150,000 to provide financial support and recognizing their exceptional efforts.

STUDENT ORGANIZATIONS

[Association for Computing Machinery](#)
[IEEE Computing Society](#)
[Upsilon Pi Epsilon](#)

[Engineers Without Borders](#)
[Engineers for Sustainable World](#)
[Student Chapter of the Florida Engineering Society](#)
[National Society of Black Engineers](#)
[Society of Hispanic Engineers](#)
[Society of Women Engineers](#)
[Tau Beta Pi The Engineering Honor Society](#)
[Theta Tau](#)



For more information
<http://outreachrequest.eng.usf.edu>
www.eng.usf.edu

UNIVERSITY OF SOUTH FLORIDA COLLEGE OF ENGINEERING

2011-12 CURRICULUM

MINOR IN COMPUTER SCIENCE 18 hours (minimum)

Computer Science Minor

This Computer Science minor is an 18 credit hour program that is open to all students, except for Department majors, that meet the prerequisites listed below. The Computer Science minor is expected to be very attractive to students in other Engineering departments, and to students in Mathematics and the Sciences (including Physics, Chemistry, and Biology). Students must register with the Department of Computer Science and Engineering undergraduate advisor prior to starting this minor program. Consultation with the Department undergraduate advisor will ensure that students are informed of all offered courses. All catalog prerequisites and registration requirements must be met for enrollment in any of the courses required for the minor. All students desiring to pursue the minor must meet the same entry and continuation requirements as a Departmental major.

PREREQUISITE COURSES:

1. Calculus I and II (MAC 2281 and MAC 2282 are recommended)
2. Physics I and II with lab (PHY 2048/2048L and PHY 2049/2049L are recommended)
3. Programming Concepts COP 2510 or other approved introductory programming course

REQUIRED COURSES (12 HOURS)

COP 3514 Program Design	3
CDA 3103 Computer Organization	3
COP 3331 Object Oriented Design	3
COP 4530 Data Structures	3

The remaining six credit hours can be taken from electives offered by the Department. Specialty tracks in hardware, software, theory, and many other areas can be defined in consultation with the Department undergraduate advisor. A specific pre-graduate school track (requiring a total of 21 hours) intended for students planning to seek admission into the Department graduate program has been defined as follows:

COT 4400 Analysis of Algorithms.....	3
COP 4600 Operating Systems	3
CDA 4205 Computer Architecture	3

Successful completion of the minor requires a minimum 2.0 GPA in the above listed courses.